

# **EXHIBIT 65**

# Migrating to a new Ubuntu version

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## Default operating system by cluster version

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To migrate your worker nodes to a new Ubuntu version, run a command to specify the new version for a worker pool. Then, update the individual worker nodes in the pool.



**Deprecated:** Ubuntu 20 is deprecated and support ends on 31 May 2025. Migrate your worker nodes to Ubuntu 24 before support ends. Make sure you understand the [limitations for Ubuntu 24](#) before you begin migration. For more information, see [Migrating to a new Ubuntu version](#).

## Default operating system by cluster version

Ubuntu 24 is the default operating system for all supported cluster versions. A worker pool's operating system does not automatically change when you upgrade a cluster.

## Ubuntu 24 limitations

- For Ubuntu 24, the `/tmp` directory is a separate partition that has the `nosuid`, `noexec`, and `nodev` options set. If your apps install to and run scripts or binaries under the `/tmp` directory, they might fail. You can use the `/var/tmp` directory instead of the `/tmp` directory to run temporary scripts or binaries.
- The default `cgroup` implementation is `cgroup v2`. In Ubuntu 24, `cgroup v1` is not supported. Review the [Kubernetes migration documentation for cgroup v2](#) and verify that your applications fully support `cgroup v2`. There are known issues with older versions of Java that might cause out of memory (OOM) issues for workloads.
- Note that with Ubuntu 24, NTP uses `timesyncd` and related commands might be updated.

## Migration steps

Migrate your worker nodes to use Ubuntu 24. These steps apply to all supported cluster versions.

- Review your worker pool operating systems to determine which pools you need to migrate.

```
$ ibmcloud ks worker-pools -c CLUSTER
```



- Specify the new Ubuntu version for the worker pool.

```
$ ibmcloud ks worker-pool operating-system set --cluster CLUSTER --worker-pool POOL --operating-system UBUNTU_24_64
```



- Update each worker node in the worker pool by running the `ibmcloud ks worker update` or `ibmcloud ks worker replace` command.

**Tip:** Make sure you have enough worker nodes to support your workload while you update or replace the relevant worker nodes. For more information, see [Updating VPC worker nodes](#) or [Updating classic worker nodes](#).

Example command to update Classic worker nodes.

```
$ ibmcloud ks worker update --cluster CLUSTER --worker WORKER1_ID [-worker WORKER2_ID]
```



Example command to update VPC worker nodes.

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CLUSTER --worker-pool POOL --operating-system UBUNTU\_24\_64

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③ Update each worker node in the worker pool by running the [ibmcloud ks worker update](#) or [ibmcloud ks worker replace](#) command.

**Tip:** Make sure you have enough worker nodes to support your workload while you update or replace the relevant worker nodes. For more information, see [Updating VPC worker nodes](#) or [Updating classic worker nodes](#).

**Example command to update Classic worker nodes.**

```
$ ibmcloud ks worker update --cluster CLUSTER --worker WORKER1_ID [--worker WORKER2_ID]
```

**Example command to update VPC worker nodes.**

```
$ ibmcloud ks worker replace --cluster CLUSTER --worker WORKER_ID --update
```

④ Get the details for your worker pool and workers. In the output, verify that your worker nodes run the new Ubuntu version.

Get the details for a worker pool.

```
$ ibmcloud ks worker-pools -c CLUSTER
```

Get the details for a worker node.

```
$ ibmcloud ks worker get --cluster CLUSTER --worker WORKER_NODE_ID
```

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